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## SOCIETY OF ARTS.

FRIDAY, FEBRUARY 18th, 1853.

## TENTH ORDINARY MEETING,

*Wednesday, February 16th, 1853.*

THE Tenth Ordinary Meeting of the Society was held on Wednesday, the 16th instant, William Tooke, Esq., F.R.S., Vice-President, in the chair.

The following were elected Members :

Beldam, Valentine, Royston.  
 Bigg, Heather, 15, Weymouth-street, Portland-place.  
 Bridson, Henry, Bolton-le-Moors.  
 Fautlertoy, Robert Thos., Potters-fields, Tooley-st., Southwark.  
 Franklin, Frank, 4, Orsett-terrace, Westbourne-terrace North.  
 Gwilt, Alfred, 7, Union-street, Southwark.  
 Hornor, Edward, Halstead.  
 Hubbard, Rev. George, Corfe Castle, Dorset.  
 Jewitt, Lewellyn, Plymouth.  
 Michell, William, M.P., Bodmin.  
 Montizon, the Count de, 2, Cranley-place, Onslow-square.  
 Newton, Henry Charles, 46, Camden-road Villas.  
 Oakes, Henry Porteus, M.P., Bury St. Edmunds, and the Oxford and Cambridge Club.  
 Oldfield, D., 13, Bouverie-street, Fleet-street.  
 Snell, Edward, 14, City-road.  
 Tennent, Sir J. E., Bart., M.P., Board of Trade.  
 Thomas, John William, 153, New Bond-street.  
 Turner, Rev. J., M.A., Lancaster.  
 Uzielli, Matthew, Hanover-lodge, Regent's-park.  
 Wade, J. M., 45, Lincoln's-inn Fields.  
 Wille, William Henry, 12, Camden-square.  
 Window, Frederick Richard, 8, Craig's-court.

and the names of eight candidates for membership were read.

A paper was then read by Mr. J. Sparkes Hall on the History and Manufacture of Boots and Shoes.

Mr. Hall commenced with the antiquarian part of his subject, giving a brief, though connected sketch of the various sandals and shoes used by different nations, from the sandals of the ancient Egyptians down to the most highly-finished productions of the present time. He then described the more recent alterations which had been made in the art of shoemaking, and specially described those improvements which he had himself introduced.

He then entered at some length into the more practical part of the subject—the boots and shoes of the present day.

About twenty years since he first thought of an elastic boot, that might possibly remedy many of the evils complained of, and combine many advantages never possessed by any former boot. His first experiments were not wholly successful, as the manufacture of elastic materials was not then so perfect as it was at the present period, and the necessary elasticity could not be found in any material then made. The difficulty was to get an India-rubber web so elastic that the boot would go on and off freely, and yet not so soft and yielding as that it would not return again to its original form. After several experiments with wire and India-rubber, he had succeeded in getting the exact elasticity required; and subsequent improvements in materials and workmanship, together with the valuable assistance rendered by Mr. Thomas Hancock, the patentee of the vulcanized India-rubber, had combined to make the elastic boot the most perfect thing of its kind.

Shortly after the elastic boot was brought out, the author made some improvements in shoes, either wholly or partially elastic. They were well suited for persons whose feet swell, and whose insteps rise very suddenly, as they accommodated themselves to those changes.

The elastic India-rubber overshoes were another improvement. They were put on and taken off without any trouble of fastening; and by a very simple arrangement of a plush back, all chafing of the boot was avoided, and great firmness secured, without a chance of their "slopping."

Mr. Hall then pointed out some of the chief desiderata in the manufacture of boots and shoes, and to which he specially directed the attention of manufacturers.

It was a proverb, about twenty-five years ago, that "a clumsy boot was till lately a distinguishing mark of a true Englishman abroad."

This, however, could not now be maintained. The French, since the war, had improved wonderfully; and although England had been slow to act, yet now at length our advance in this department of trade was most marked and signal. The improvements effected by the introduction of elastic fabrics, as side-springs, insteps, and waists, were becoming universal; although few persons knew the opposition made to them by elder brethren of the trade, who saw nothing like leather, and would have nothing but leather. The form, also, of our boots and shoes had been bad; and it might be shown that the faults of which Professor Camper, of Leyden, complained, when writing on this subject about 100 years back, were still adopted by many shoemakers, viz.—that of giving the pressure on the very parts of the feet which should have freedom and relief. That more mind had been manifested among the industrious fraternity of shoemakers than had been found amongst any other equally humble class of the community, was almost a truism; and it had been quaintly remarked, that Pope might have had an eye to the profession when he wrote—

"Worth makes the man, and want of it the fellow;  
 The rest is all but leather and prunella."

The improvements most to be desired in the manufacture of boots and shoes were, first, form, by which was not meant the adoption of one extreme of fashion, as from the twelfth to the sixteenth century,—but a suitable, graceful imitation of the human foot, derived from actual observation, or, where that could not be obtained from an outline on paper, or plaster cast, and lasts made with due consideration and care. Next, the upper leather should be chosen from the softest and best skins, of which numerous specimens of both foreign and British manufacture, received medals and honorary mention at the Great Exhibition. These should be cut up in the right way, and to the best advantage. In this department there was great room for improvement.

Improvements in binding should next be considered, and any ready mode of blocking, as well as of avoiding seams, where possible, and effecting further economy and durability, by improved patterns, could not fail to be duly appreciated.

Several improvements might yet be effected in making boots and shoes; and whether by the

usual mode of sewing, the American plan of pegging, or the more recent *souliers à vis* and metallic stitches of the French, much remains to be done.

It might safely be said, encouragement should be given to any ingenious workman who might contribute, in these or any other respects, to the advance of his art. It appeared, also, desirable, that the number of emigrants now leaving our shores should be supplied with boots and shoes adapted to the climate, country, and occupation they intended to adopt; and to that end, premiums might be safely awarded for the best boots and shoes of the kind most advantageous in their pursuits. It was distressing to see the cases and trunks of ill-made boots and shoes shipped daily for Australia, India, and the Cape, which must eventually lead to vexation and disappointment when worn, being frequently made without reference to utility or comfort, only "to sell," and were seldom worth the carriage. The poor emigrant also was deceived by the attractive hand-book issued by quacks, and thought that, as the verses please him, the boots would do the same. "Good shoes," observes Dr. Aikin, "are one of the most necessary articles of dress, for health and comfort to those who go much abroad; nor has human industry in many cases more happily exerted itself than in discovering the most perfect mode of answering the purposes required in this manufacture."

Mr. WINKWORTH observed that there were two points to which, although very ingeniously propounded by Mr. Hall, he could not entirely subscribe. In the first place, in reference to elastic shoes and boots, whilst he did not deny that, in certain circumstances, great advantage might be derived from the support they afforded, yet he could not but think—and he was confirmed in his views by the customs of all enlightened nations—that there was a still more important advantage obtained, under general circumstances, from the feet being kept as free as possible. He believed, too, that the feet, as well as the other parts of the body, were not intended to be kept entirely out of sight. Every one entertained the idea that the ankle of man and woman was characterised by the line of beauty; which was, he thought, almost entirely covered over by these elastic boots. The next point was in reference to India-rubber over-shoes, and the remarks, in which Mr. Hall had implied that good ones were made only in this country. He had, himself, for about a year and a half, worn almost constantly a pair of American India-rubber over-shoes, which had been presented to him by Mr. Swift, M.P., for Sligo (late Sheriff of London), who was a very large importer of India-rubber shoes and boots from America. He had worn them a great deal, both whilst travelling and at home, and he had certainly never slipped or fallen in them. He thought, therefore, there was nothing to justify the inference that it was necessary, in order to get good over-shoes or goloshes, to keep at home. He did not doubt, however, but that the best were made in England, and that for the best of all reasons, that more care and pains were taken in their manufacture, and a higher price obtained for them; as in other matters, where the price was cheaper, it was because the commodity was inferior.

The CHAIRMAN expressed the gratification with which he had listened to the interesting paper they had heard, and moved that the cordial thanks of the meeting be

presented to Mr. Hall for the communication with which he had favoured the Society. The resolution was passed unanimously.

Mr. HALL, in acknowledging the vote, remarked that he felt much satisfaction in observing that through the various changes which the fashion of boots and shoes had passed, we had, at last, arrived at the common sense of the matter; and it was to him a source of considerable gratification, that persons of exalted station were endeavouring, by their example, to show the best mode of ensuring health in those matters, by wearing shoes sufficiently wide and abundantly long. By observing these rules, and having shoes made on lasts consistent with the anatomy of the foot, they would be enabled to get through the world without the annoyance and torment arising from wearing badly made boots and shoes.

The Secretary announced that at the next meeting of the Society a paper would be read on Uniformity in Weights, Measures, and Monies, by Professor Jack, of New Brunswick.

#### LECTURES ON COTTON.

The first lecture of Mr. Warren's course on the History, Trade, and Manufacture of Cotton was delivered on Monday, the 14th ult., and was received with much interest by a large audience.

Mr. Warren commenced his subject with a brief account of the nature of cotton itself; the natural history of the cotton plant; the varieties of it which are known to botanists, or cultivated by planters; and the distribution of those varieties in different parts of the world. Having explained the nature of the fibre, and the conditions under which it is formed in the pod of the cotton-tree, he showed that the first thing to be done was to separate the cotton from the seeds with which it was naturally associated in the pod, and described and exhibited the American saw-gin, showing the manner in which, by the combination of circular saws and revolving brushes, the fibre was torn off from the seeds, which remained in the machine, whilst the clean cotton was driven out at the one side.

The rapid development of the cotton trade, and its vast and increasing importance, were next pointed out; and it was shown how, in comparatively few years, the trade in cotton had increased from some hundreds of bales to such a quantity that now more than a thousand tons of raw cotton were employed by the manufacturers of this country every day. Mr. Warren then explained the uncertain nature of the supply of raw cotton, and the very serious consequences which would arise to this country if any interruption in the supply were to occur, as between two and three millions of persons are now occupied in the manufacture, and as the manufacturers never have more than three months' supply in store. He showed that such an interruption might at any time occur, even without supposing any material quarrel or misunderstanding to be brought about between the two nations; it might be caused either by the gradual working of the great slave question, or even by the mere combination of speculators.

The lecturer then pointed out some of the

other sources from which a supply of raw cotton might be obtained, and especially adverted to the great and peculiar advantages possessed by our East Indian possessions for the cultivation of cotton. He stated that it was now well ascertained that any quantity of good cotton, of that quality most practically useful to our manufacturers, might, with proper management, be raised and imported from India.

#### INTERCHANGE OF PRIVILEGES.

THREE months since a circular was sent to the Institutions in Union, suggesting a general interchange of privileges amongst the members of different Institutions; it being proposed that a member of any one Institution should have admission to the libraries, lectures, or meetings, and should, in fact, for the time being, enjoy all the privileges of membership of the Institutions of any other town which he might happen to visit. This plan has for some time been tried on a small scale in counties and local unions; and as it appears in every case to have met with complete approbation, and to have worked in a very satisfactory manner, the proposal was made to extend the system to the whole country. Accordingly, at the end of last October, a circular was sent to each Institution, suggesting the adoption of a general and uniform card of membership, as a convenient mode of carrying out such an interchange of privileges, and inviting an expression of opinion in favour of, or against, the plan. As a quarter of a year has now elapsed since this was done, and as inquiries are beginning to be made respecting the answers received, it will be well to state briefly the result.

It is obvious, in the very outset, that some difficulties would arise, and that a good many objections would probably have to be overcome before such a system could be generally carried out; but as it is obvious that it would increase the power and usefulness of Institutions, and encourage the friendly intercourse and co-operation of the members of the different Institutions, it would be well worth trying to arrange and overcome all minor objections in order to secure so important an end.

Out of two hundred and thirty Institutions to which the circular was sent, replies have been received from one hundred and twenty, and of these one hundred and thirteen fully approve of the plan, and are willing to adopt any suitable mode for securing to their members the interchange of privileges. Of the remaining seven, two are precluded by their constitution from adopting the interchange, though fully alive to its importance; two postpone the subject for the present; one is willing to adopt it with Institutions of the same denomination, that is to say, with "Literary and Scientific Institutions;" and two decline it altogether.

Of course, in some cases, little local difficulties are mentioned, which will no doubt be arranged without much trouble by the Managers or Committees; but all things taken into account, the replies must be considered as remarkably unanimous in their approval of the system of interchange; and, indeed, it may now be regarded as settled, that a very large number of

the Institutions in the Union have adopted it. It is probable that some of those who have not yet replied to the printed circular of last October will desire to participate in the interchange of privileges, now that its adoption by so large a number of the principal Institutions is announced; and therefore, to give them an opportunity of doing so, the publication of the names of those which have already approved of it, is delayed to this day fortnight.

It is obvious that each Institution must make such rules and regulations for the admission of visitors as are most convenient; and that in cases where the limitation as to distance is found to be inconvenient, it may be modified or altogether dispensed with. The adoption of a uniform card of membership, though approved by many Institutions, has not been adopted by all; and though it would have unquestionably simplified the mode of action, yet it is by no means essential to the principle itself, for which it will be enough that every Institution agreeing to the system of interchange shall have a list of all those with which it is thus placed in friendly intercourse. Several Institutions have objected to the idea of adopting a new form of members' cards, and various difficulties have been raised. To meet these, it has been suggested that a limited number of uniform "travelling cards" should be supplied to each Institution, bearing on the one side the name of the member to whom it was granted, and on the other a list of all the Institutions to which it would admit him, constituting, as it were, a kind of circular letter of introduction, which would only be applied for by those likely to visit other towns.

EDWARD SOLLY.

January 28th, 1853.

#### COLONIAL AND INTERNATIONAL POSTAGE.

SIR,—Permit me to hand you a few extracts from letters recently received, for which I hope you will be able to find room in your journal.

Your obedient servant,

G. W. YAPP,

Cor. Sec. Postage Association.

Boston, Massachusetts, Jan. 14, 1853.

I perceive by the published report of the proceedings of the International Cheap Postage Association, in London, that you are its Honorary Secretary; hence I take the liberty of troubling you with this note.

I have been for more than twelve years devoted to the same cause, and have at last succeeded in obtaining a radical reduction of the rates of postage on inland letters, newspapers, periodicals, and printed matter, in the United States; since that has been accomplished, my attention has been directed to the reduction of Ocean postage. In view of the Industrial Exhibition which is to take place next summer in the city of New York, I have, in a circular, recommended the establishment of an Association composed of gentlemen from Europe, and different parts of the United States, who may then be present, to act in concert with your Association in effecting the reduction of the rates of Ocean postage.

I am now in Boston, endeavouring to arouse its influential merchants and citizens to take an active part in this matter. I hope to establish Associations here, and in all our principal cities, during the present winter, and

to forward a large number of petitions to Congress at its present session, although I have little hope of any legislative action.

I have received no definite information of the actions of your Association since it was first organised; if I could learn what it has done, and is now doing, I would cause its proceedings to be published in our newspapers, because it would encourage and stimulate our people to follow your example.

To carry this measure into complete effect we must have the co-operation of the several Governments of Europe; if, however, a tripartite postal treaty could be entered into by Great Britain, France, and the United States, the other powers would of necessity be compelled to follow their example. It is, however, desirable that the action between our Government and yours should be simultaneous, and hence the necessity of our being made acquainted with the exertions of the people of both countries in behalf of this measure.

Yours, &c.,  
BARNABAS BATES.

Hampstead, February 7th, 1853.

MY DEAR SIR,—I have well weighed the subject since I had the pleasure of meeting you, and have come to the conclusion that if the system of general penny postage is adopted, it will tend more to the advancement and prosperity of both the colonies and the mother country than any other measure that has been carried out since we became a colonizing people. It strikes me that the only question likely to arise will be connected with an anticipated decrease of the Post-office revenue: but I believe that any objection on this score will disappear before inquiry. As far as regards the Indian Archipelago, about which I am competent to form an opinion, having resided for the last four years at Singapore, I am convinced that the increase of revenue from the penny system will be incalculably great; for, in addition to a large increase in the number of letters, circulars, prices-current, &c., the Post-office will be availed of very extensively for the conveyance of samples, books, &c. The amount realised from this new source of postal revenue would at once exceed that derived from the postage of letters, even at the present high rate; and it would be increased indefinitely when the facilities afforded by the new system came to be known and appreciated.

GEORGE WINDSOR EARL.

February 14th, 1853.

To show you how people evade the high rate of postage, I may mention that with the enclosed note I received in one envelope four others, making five letters for one rate of postage (1s. 10d. overland). Frequently I have eight or ten enclosed. Had the postage been only a penny, every letter would have been sent direct, and probably twice the number written.

F. A.

THE following extracts from Mr. Rowland Hill's pamphlet, containing his original proposals of Penny Postage, will be read with interest, as containing his views at that time upon the subject of Foreign and Colonial Postage:

For the sake of simplicity in accounting for the postage, it is very desirable that the foreign and colonial letters should be subjected to, as nearly as practicable, the same regulations as inland letters.

As, however, it will probably be impossible in all

cases to provide for the English postage on letters received from foreign countries being paid in advance, some peculiar arrangements with reference to foreign letters appear to be required. The mode of dealing with them, which suggests itself to my mind, is the following.

Let all foreign letters, on leaving this country, be subjected to a double rate of English postage, but let foreign letters received into this country be delivered free. The postage claimed by the foreign government being in each case paid by the foreign resident.

This arrangement would appear to obviate the necessity for all negotiation with foreign governments on the subject of postage, and it would be practically the same in its results as though the English postage were charged in both directions; the only difference being (with few exceptions not worth regarding,) that in an interchange of letters the English resident would pay his share of the postage at once instead of at twice. The covers used should be legibly marked, "Foreign Letter," and sold at uniform rates.

If, as I would recommend, the rates of postage already proposed for inland letters were extended to foreign letters, the prices of covers for foreign letters would be exactly double those for inland letters; but as it appears necessary to treat foreign letters differently from others, no inconvenience would arise to the operation of the general plan if the prices were higher.

For the sake of simplicity it appears desirable to treat all foreign letters alike, although certain Governments might be willing to require payment of the whole postage in advance, and to account to the English Government for the English portion.

And as, in many minds, the distinction between a foreign country and one of our colonies is not clearly defined, it would be desirable, perhaps, that colonial letters should be placed under the same regulations as foreign letters. If this were done, the covers would be marked, "Foreign or Colonial Letter."

The reduction here proposed in the postage of foreign and colonial letters might easily be effected, for the increase in the number would be such that the payments for ship-letters might be reduced from twopence, the present rate, to a farthing each, and yet amply remunerate the masters of vessels.

There is, perhaps, scarcely any measure which would tend so effectually to remove the obstacles to emigration, and to maintain that sympathy between the colonies and the mother country, which is the only sure bond of connection, as the proposed reduction in the postage of colonial letters.

The importance of promoting voluntary emigration from Ireland in aid of the Poor Laws, renders this consideration, at the present time, deserving of the greatest attention.

#### ESTABLISHMENT OF DISTRICT SCHOOLS OF PRACTICAL ART IN THE METROPOLIS.

THE following announcement has just been issued by the Department of Practical Art: "Her Majesty's Government having required that the premises in Somerset House, now occupied by the School of Design, should be forthwith given up for the use of Public Offices, and having instructed the Department of Practical Art to assist in establishing Schools of Art and Elementary Drawing Classes, in connection with Public Schools in several districts throughout the metropolis, in order to supply the Elementary Instruction heretofore given at Somerset House, NOTICE IS HEREBY GIVEN,

that the Department of Practical Art, upon receiving requisitions from parochial and other authorities, will be prepared to aid in forming such District Schools of Art and Elementary Drawing Classes. A suitable room or rooms, with lighting and firing, will have to be provided by the local authorities, towards defraying the expenses of which certain fees received for instruction may be applied, and the Department will appoint, and guarantee the salary of, a suitable master, and assist in providing a supply of copies, examples, models, &c., for the use of the students. Further information may be obtained at the offices, Marlborough House, Pall-mall.

"W. R. DEVERELL, *Secretary*."

## HOME CORRESPONDENCE.

### LEGAL POSITION OF INSTITUTES.

South Grove, Highgate, 15th Feb., 1853.

MY DEAR SIR,—The Report of the Institutes' Committee on the Legal Position of Institutes, and Mr. Ryland's interesting letter published in the last Journal, will, I hope, educe that thorough discussion of the subject which alone can lead to its satisfactory settlement.

I propose now, in my private capacity, to make a few remarks upon the question of the exemption of Institutions from local rates.

It seems to be quite clear that the Exemption Act, 6 & 7 Vic. c. 36, must be either amended or repealed. I am of opinion that it ought to be absolutely repealed. I never could understand upon what principle it was founded; upon what grounds of reason or equity the Institutes should be exempted from that local taxation to which almost all other descriptions of property are liable.

If it be argued that the Institutions are useful, I reply, so are booksellers' shops and cotton mills. If that the Institutions are not only useful but disinterested, established and maintained with no view to pecuniary profit, I reply, so are religious and charitable associations, the clubs of London, chambers of commerce, and numerous other establishments. But it can scarcely be asserted that the Institutions are disinterested bodies. No doubt we do not expect, and we cannot receive, any dividend or pecuniary bonus; but do we not combine in an Institution, as in a club, for the purpose of obtaining, by combination, to a greater degree and at a cheaper cost than would otherwise be obtainable, those advantages which Institutions are intended to confer? Why, then, should we by combination be enabled to escape from those social charges which, singly, we should each have to pay in a far higher proportionate rate?

Nor can it be argued that it is poverty alone which is relieved under this statute. It relieves some of the wealthiest Institutions in the kingdom, some of those which are the chosen resorts of aristocracy.

The Parliamentary Lists of Institutions exempted under the Act, exhibit the titles of the following among many other Societies. The Royal Institution of Great Britain, Royal Botanical Society, London Zoological, Horticultural, Religious Tract, Royal Society, Civil Engineers, United Service Institution, Astronomical, Statistical, Geological, Asiatic, Linnæan, Agricultural, Art Union, Diffusion of Useful Knowledge, Arts, Commerce, and Manufactures, Royal Society of Literature, Royal Academy of Music, London Library, Antiquaries, College of Chemistry.

These surely cannot be exempted on the score of poverty.

The whole system and theory of these exemptions from local taxation appear to me to be erroneous and mischievous, mere remnants of an exploded policy of protection and bounties. Surely it is beneath the dignity of the Institutions to appear in *forma pauperis*, as unable to bear their fair share of the burdens to which other property is liable. Surely it is not by such small evasions of expenditure that the Institutes are to gain strength and *status*, and to work out their important objects.

I am, yours, very faithfully,

H. C.

SIR,—Allow me to say a few words on the Report of your Institutes Committee, where that Committee proposes to prepare a bill to contain (amongst other things) a clause declaring that the School Sites Acts, five in number, shall be applicable to Institutions, as if they were schools contemplated by those acts. With all deference to the Committee, I fear this would be but of little benefit. In the first place, the acts themselves, beside being ill drawn, are intended to apply to schools and the circumstances specially connected with them, and to be worked by a machinery applicable to schools, but not to Institutions. The acts, too, have been passed to repeal, amend, and supply deficiencies to each previous act; but the confusion is enormous. I need scarcely say it would be no boon to an Institution to be entangled in such a complication. There is no more fertile source of uncertainty and litigation than the common practice of incorporating by reference to an act relating to one subject, provisions (however good in principle), intended to apply to others. If the principle of the provisions be good, let it be adopted and carried into effect by distinct clauses, carefully framed, with words apt for the subject. Besides, consider the no small inconvenience of having on every occasion to refer and read five other Acts of Parliament, in addition to the one specially relating to Institutions. I would suggest for the consideration of the Committee, carefully to collect all the laws specially relating to or affecting Institutions, and let the proposed Act of Parliament repeal all such existing laws, re-enact such as it is deemed desirable to retain, and, in addition, contain all such new special provisions as may be deemed necessary. Let the proposed act be, in fact, the code regulating the special government of Institutions. It appears to me, as worthy of consideration, whether, as a mode of securing the property of Institutions, both real and personal, each should not, under proper regulations, become corporate bodies, having perpetual succession, enabled to take and hold lands of a limited amount for sites. This would remove a vast deal of complication as to trustees and renewal of deeds of trust, which, by-the-by, is only very partially provided for by the School Sites Acts, and by means of a machinery scarcely applicable to the case of an Institute.

Your's, &c.,

F. P.

### NEW INVENTIONS.

SIR,—Mechanics' Institutes frequently have opportunities of acquiring the earliest knowledge of valuable inventions and improvements, or of becoming possessed of original and authentic information, of general interest, on subjects connected with Arts, Manufactures, and Commerce. Allow me to suggest that much additional good might result in this direction from the union of local Institutes with the Society of Arts, if it were more generally known that on such occasions brief com-

munications addressed to the Secretary will be courteously received, and, if deserving, readily inserted in the Society's Journal; and that in cases of importance the Council will be willing to take such other steps as may be required for public advantage, or may be claimed by individual merit.

Yours, &c.,

T. TWINING, Jun.

#### SPECIAL PRIZE.

SIR,—It cannot but appear that the subject of this Prize deserves all the consideration well-stored and experienced minds can give it. It is a subject also very aptly chosen at this time, following, as it does, on the heels of the extensive association now made between the various Literary and Scientific Institutions of this kingdom and the Society of Arts. I fear it must, at the same time, be allowed that it is a subject very difficult to meet with satisfaction, and a hope of success from any one or two essays, however powerfully written, on account of the active and negative opposition which is offered by too many people, very influential both in purse and position. At the same time, this conviction should not discourage, but rather stimulate the more enlightened members of the Society of Arts, if not to remove, at least to endeavour to temper, by the most powerful reasons they could advance, that opposition to Institutions which so much, in the provinces especially, helps to paralyse the best efforts of managing committees, and to cripple their funds. Of the individuals who more especially hold back their patronage, we may first name those who "live at home at ease," and have neither heard and read anything (as they say) yet to convince them that a Scientific and Literary Institution is now as much a national necessity in a district, as our national defences may be, or any other national establishment. Then there are others, who possess and enjoy literary and scientific knowledge themselves, are yet jealous of its spread amongst the people, and would rather continue to astonish than humanize, or enlighten their neighbours. Others there are again, and a formidable number too, who, though not absolutely opposed to, or unfavourable to Institutions, are, though qualified in ability and purse to assist them, either too indolent or too proud "to lend a hand;" and as this is an age in which there is almost a childish struggle for "caste," there are not a few sufficiently contemptible and shallow who believe they are taking low ground when they are seen within the walls of a provincial Institution. Did I not fear to occupy too much space in your valuable Journal, I could enlarge on other causes of injury and impediments to the prosperity of Institutions; but for the present I will but venture to say, that I humbly think that those who enter the lists to write an Essay on the History and Management of Literary and Scientific Institutions, will promote a great public good, if they can with some success give the above remarks I have taken the liberty to advance ample and serious consideration.

It is stated by one who signs himself "Delta," in your Journal of January 28th, that though Institutions were primarily designed for the operative portion of the community, that they have fallen into the hands of the middle classes. This is most true; and I am one who thinks that Institutions, to be ultimately useful and extended, as proposed in a circular lately sent amongst us, to the operative classes, cannot remain in better hands than in those of the middle classes, assisted and supported moreover by the upper classes; for out of the two latter classes we can chiefly look for that support, influence, encouragement, and example of order,

which give steadiness and impulse to these Institutions. For though Government may be very properly appealed to to assist Institutions in carrying out and extending their present operations for the benefit of the operative classes, it can hardly be expected that the Government will be able to assist 200 Institutions with more means than shall enable well qualified establishments to provide themselves with good librarians, to assist as teachers and expounders, and a certain extent of lectureships, according to the taste and vocations of particular districts; and, perhaps, a sum for prize medals and essays.

There is one more rather material point I will venture to name in conclusion, which we may hope will be considered by those who write on the subject of Institutions. It cannot but be observed that there is frequently much too strong a political and even religious bias working for or against Institutions. Now this should be, if possible, got rid of; for in many districts it acts as a very fatal obstacle to advancement. A Literary and Scientific Institution should be free of all such taint, and all within its walls should conscientiously work on neutral ground. Whatever be the politics or religious bias of those who take a lead in Institutions, it should be a point of honour to merge all in one feeling of perfect patriotism and pure religion.

I have the honour to be, Sir, faithfully yours,

WILLIAM LANDEN HOPKINSON, M.D.

St. Martin's, Stamford.

Feb. 6, 1853.

#### PHOTOGRAPHY.

107, Regent-street, 7th February, 1853.

SIR,—Taking a great interest in all improvements capable of being introduced in the art of photography, I should be glad to understand the exact meaning of the letter of your correspondent, Mr. Reveley, respecting the advantages of substituting a blue achromatic object glass for the clear white ones generally used, and in order to promote further explanations, I shall be obliged by your insertion of a few remarks suggested by Mr. Reveley's communication.

I do not see what chromatic or spherical aberration has to do with the deficiency of "artistic effect so much complained of in photographic pictures" (Mr. Reveley ought to have added, in *bad* photographic pictures).

The images produced by perfect object glasses, such as those which can be procured from good opticians, are so nearly identical in outline and form, and in light and shade, with those obtained on the retina, that their only deficiency is the absence of natural colours; unfortunately a problem, the solution of which is so remote that we must be satisfied to leave to our successors this prospective discovery.

I therefore quite agree with Mr. Reveley that the want of artistic effect, "cannot be attributed to the camera, because the views in a camera, as seen by direct vision, are a true and faithful representation of Nature itself." But I disagree with him when he adds, "that in sun pictures there is a third source of error in actinic aberration, or the difference of refrangibility between the actinic or chemical, and the pure light rays."

This source of error does not exist; because good object glasses will bring to the same focus all the chemical rays, in fact, achromatise luminous rays, as perfectly as the luminous rays are achromatized in the image seen on the ground glass of a camera obscura. The chemical rays do not contribute in any sensible degree to the formation of the luminous image, nor the luminous rays to the photographic image.

For this reason, a good achromatic object glass may give a perfect luminous image on the ground glass, and a perfect photographic image on the sensitive tablet. It is true that these two images have generally two different foci, but if the photographer knows how to obtain the correct photographic focus (and nothing is so easy), he can obtain on his tablet a picture as true and faithful as that exhibited on the ground glass of his camera.

These facts have been fully investigated in various papers I have published on the subject, and I refer your readers interested in it to the *Philosophical Magazine*, February, 1848; March, 1848; November, 1848; November, 1849.

An object glass cannot be too white, and white is preferable to blue; it is true that between a glass tinted yellow or green, and one tinted blue, the preference should be given to the blue; but I am convinced that there can be no advantage in substituting a deep blue tinge for the colourless glass.

A very simple experiment will convince Mr. Reveley that he will gain nothing by a deep blue object glass, which would have the great disadvantage of obscuring the visual image so much that it would be impossible to focus the camera.

If he covers one half of an engraving with a deep blue glass, and the other half of it with a clear white glass, he will obtain on the photographic tablet as correct an image of the second half as of the first, and he will find to his astonishment that although he has stopped all the red and yellow rays in the half covered with the blue glass, the half reflecting the chemical rays with these objectionable "red and yellow rays," will be as perfect and well defined as the other, and deficient in none of its artistic requirements.

As regards the best mode of obviating the various aberrations and refrangibilities of the chemical rays, a blue lens cannot have the least effect in correcting that aberration; and I do not understand how, with a blue object glass, sun pictures would be more true and uniform in appearance, and would possess that artistic effect, the absence of which is so very detrimental.

The artistic effect depends upon the taste of the operator, and not in the least degree upon the achromatism of the lens; and when that artistic effect is deficient he must not accuse the optical instruments, no more than the art of the photographer, which fortunately is susceptible of displaying as much true artistic feeling as any other art.

Notwithstanding the stale jokes with which some clever writers—but whose scientific and artistic abilities do not seem to equal their classical attainments—condescend to amuse their readers with grotesque descriptions of all the defects of a bad photographic portrait,—photography, properly conducted, can produce a perfect and pleasing delineation of the human face, and its defects, like that of bad music or bad painting, are the defects due to the ignorance or carelessness of the artist, or to bad apparatus, and not to the art itself.

I am, Sir, your obedient Servant,

A. CLAUDET.

## PROCEEDINGS OF SCIENTIFIC SOCIETIES.

ENTOMOLOGICAL, February 7. — E. Newman, Esq., President, in the chair. John Garland, Esq., was elected a member, and F. T. Hudson, Esq., a subscriber to the Society. The President returned thanks for his

election, and nominated, as Vice-presidents, W. W. Saunders, Esq., W. Spence, Esq., and J. O. Westwood, Esq. Mr. D. Hanbury exhibited some of the white insect-wax of China, and the insects from which it was obtained; respecting both of which he read from the "Journal of the Agricultural and Horticultural Society of India," a very interesting account. The wax is harder, and is fusible at a higher temperature than bees-wax: it has been imported, and found useful in various ways in this country, but is too expensive for general employment. Mr. Westwood said the insects exhibited were wingless females of a species of *coccus*, and their bodies were entirely permeated with wax. He exhibited several species of *coccus* from various parts of the world, all of them being producers of colouring, or waxy matter. Mr. Baly exhibited specimens of bees, which had been preserved in spirit, and restored to their original beauty by washing with soap and warm water, and drying with blotting-paper. Mr. Spence exhibited specimens of *glossina mersitans*, the African fly, known as "Tsétsé," communicated with a note on its habits, to Dr. Quain, of Harley-street, by William Oswell, Esq. Several additions to our knowledge of this insect were made by the reading of this note. Three or four flies are sufficient to kill an ox, death ensuing in from three to twelve weeks after being bitten; and on one occasion, Mr. Oswell lost forty-nine out of fifty-seven oxen. The poison seems to grow in the blood, and through it to attack the vital organs. All domesticated creatures, except goats, calves, and young sucking animals, die from the bite of this insect; man and all wild animals are bitten with impunity. The fly is confined to particular spots, chiefly between 18th and 15th degrees of south lat., and 24th and 28th degrees of east long. The following papers were read: 1. A short account of three specimens of *Vanessa Io*, found hybernating, which emitted a slight but distinct sound upon being disturbed, by the Rev. Joseph Greene. 2. Descriptions of some new Longicorn beetles, brought from China by R. Fortune, Esq., by W. Wilson Saunders, Esq.; and, 3. Description of some new *Curculionide*, by G. R. Waterhouse, Esq.

ZOOLOGICAL SOCIETY, Feb. 8th. — J. Gould, Esq., F.R.S. in the chair. Dr. Baird communicated a paper "On new species of Entozoa, contained in the National Collection, at the British Museum," which he described under the following names: *Ascaris similis*, *A. lævisima*, *A. bifaria*, *Gordius platyura*, *G. Tolosanus*, *G. Verrucosus*, *G. Violaceus*, *G. Pustulosus*, *Mermis rigidus*, *M. spiralis*, *Pentastoma megacephalum*, *Tetrarhynchus rugosus*, *Tenia Bremseri*, *T. Calva*, *T. Zederi*, *T. Goezii*, *Bothriocephalus antarcticus*. — Dr. Gray communicated a description of the animal of *Cyclina sinensis*, which he stated was drawn up ten or twelve years ago from a specimen presented to him by Mr. John Reeves, to whom we are indebted for the knowledge of the greater part of the animals of China, with which Zoologists are as yet acquainted. The animal in most particulars agrees with that of the genus *Dosinia*, next to which Dr. Gray lately proposed to place it in his arrangement of the genera *Veneride*. — Mr. Adam White contributed a monograph of the genus *Egosoma*, of Serville, with the description of *Cyrtionops*, a new genus allied to it, for the type of which he proposed the name of *Cyrtionops punctipennis*. It was obtained in India. The additions to the genus *Egosoma* are remarkable, and five in number, viz.: *Egosoma sinicum*, collected by Mr. Fortune, at Shanghai; *Æ. ornatocolle*, from India; *Æ. cingalense*, from Ceylon; *Æ. sulcipenne*, collected by Mr. Packman, in Tenasse-



rim; and *E. tibiale*, from northern India.—The Secretary read to the meeting some extracts from notes on the Zoology of the Malay peninsula, with which he had been supplied by Mr. George Windsor Earl, whose long residence in the Indian Archipelago, had given him abundant opportunities for observation. Among the most remarkable animals alluded to, were two species of wild cattle of immense size, to which the natives give the names of *Sapi* and *Saladang*. The Secretary exhibited on the part of Mr. Richard Hill, corresponding member, a beautiful series of Birds' Eggs, collected by that gentleman in Jamaica, and therefore authentically named. It is greatly to be regretted that a considerable number were broken in their transit to this country, or during their detention at Southampton. The extreme beauty of these eggs, and the certainty with which they have been determined, give an unusual value to this donation, although Mr. Hill has ever been regarded as one of the most active and intelligent contributors to the objects of the Society, in connection with the Zoology of the great island, in which he has so long resided.

INSTITUTION OF CIVIL ENGINEERS, Feb. 15th.—J. M. Rendel, Esq., President, in the chair. The Paper read, was "On the use of Heated Air as a motive power," by Mr. Benjamin Cheverton.

The author, in a short historical notice, stated that Sir George Cayley had written on the subject in 1804 and 1807, and had subsequently built several engines, but that the Messrs. Stirling, of Scotland, produced the first really efficient engine, working by means of heated air, in the year 1827; in the same year Messrs. Parkinson and Crosley brought forward their Air Engine; that Mr. Ericsson, following more closely the arrangements and form of the ordinary steam engine, constructed an air, or a "Caloric Engine" as it was termed, in 1833;—Messrs. Stirling patented further improvements in 1840, and in 1845 their engine was described to and discussed at the Institution of Civil Engineers;—in 1851 Mr. Ericsson brought forward his present form of engine;—and that the principle acted upon in both these latter inventions, and announced as an important discovery in motive mechanics, was the reiterated use of the same caloric, in the production of power. The mechanical means of realizing this idea were described, and it appeared that in both inventions they were substantially identical. The ejected hot air by being brought into contact with an extensive metallic surface, of wire gauze, was deprived of its heat, which the next moment was imparted to the incoming cold air, and thus the ultimate use of the furnace was only to supply the unavoidable waste of caloric by radiation.

This view of the subject was strongly contested, as being inconsistent with the best established laws of nature, and as involving the idea of the possibility of the creation of power. It was argued at some length, that the employment of caloric as a motive agent, consisted in the development, from molecular forces, of a dynamic force, and as such, was directly amenable to the third law of motion—that of action and reaction being equal and opposite. It was contended, that sensible caloric was not an indication of the presence, but of the abeyance of mechanical action; that these were interchangeably convertible quantities; and consequently, that a working force could appear, only as heat disappeared—a conclusion entirely opposed to the assumed principle of the "Caloric Engine," that "caloric could be made to operate over and over again." It was admitted, however, that there was an apparent anomaly in the application of the law of action and reaction, when caloric was in question, in the fact, that

its quantity was not less after than before the generation of steam power, if it were estimated conjointly by water and temperature. But it was explained, that a cause might have two classes of effects, and might require two distinct and different measures, to indicate its entire efficiency; that while caloric might remain intact, under the aspect adverted to, it lost by a declination in the intensity of its temperature, for which the equivalent gain was a dynamic force—a conclusion as adverse as before to the idea that such force could be acquired without cost. It was, in short, in the aspect of a *vis viva* "force" in caloric, that the development of mechanical action must be considered. These views were further explained and illustrated, by a reference to the analogous difference between momentum and the more practical modification of power, named by Smeaton and Watt, "mechanical power," "work," and "duty;" and it was shown that here also an apparent discrepancy existed in relation to the third law of motion, but which was cleared up when both the measures of power—that by time and that by space—were appropriately used.

It was contended, that the "Caloric Engine" was analogous to a non-expansive high-pressure steam engine, which it would exceed in wastefulness of heat, if it were not provided with, what its inventor improperly termed, a "Regenerator;" the office of which, it was insisted, was simply to absorb the unutilized sensible caloric of the escaping air, which, as compared with steam, was in very large proportion to the efficient, caloric; and to afford another opportunity for its being converted into force, thus compensating for the loss of expansive pressure. An explanation, founded on these considerations, was given of the continued action of the engine, for some time after the fire was withdrawn—a fact which had been advanced in support of, what was styled, the untenable hypothesis of a "regenerator of force."

Although the mechanical effect of heat might be proved to be independent of the chemical condition, if not, also, of the physical constitution of bodies, it was admitted, that economy of fuel, as being a distinct question from that of economising the caloric already in possession, was eminently a practical matter, only to be determined by experiment; and in this point of view it was explained, in what manner the reception of heat, at a much higher temperature than steam, was greatly in favour of air as a motive agent; but, on the other hand, many adverse considerations were adduced, tending to show the impracticability of the system, in its present form.

In conclusion, it was shown, that the "Caloric Engine" did not rest on true principles, exclusively its own,—that its merits stood upon common ground with those of the steam engine—and therefore, that even should the performances of air be found superior to those of steam, it could not be anticipated that the former would immediately supersede the latter; but, as far as public statements could be relied on, the performances of the air engine on board the "caloric ship," *Ericsson*, were very unfavourable to the pretensions of the promulgators of the plan.

The discussion was commenced by an exposition of the several systems adopted by Sir G. Cayley, Stirling, Parkinson and Crosley, and Ericsson, illustrating them by diagrams; whence it appeared, that the most preferable mode of heating the air was that of Sir G. Cayley, by directly traversing the incandescent fuel; that the great improvement recently introduced by Ericsson, was the wire gauge regenerator, which, however, formed an integral part of Stirling's original design. The practical

difficulties of the immense dimensions of the heating vessels and cylinders, and the rapid destruction of the metallic parts, were fully considered; and it was admitted, that although at present there did not appear to be any positive recorded results more advantageous than by the use of steam, it would be wrong to discourage the attempt to use heated air, and to overcome the inherent difficulties of the system.

Allusion was made to the appendix, to a tract, published by Mr. A. Gordon, wherein it was shown that the volume of the gases into which one cubic foot of anthracite coal was decomposed, under atmospheric pressure, was 219,250 cubic feet; that the volume of air required to sustain combustion, was 14,273 feet; the mechanical power developed was 473,000,000 lbs., raised one foot. It was proposed by Mr. Maxwell Lefroy to pass these gases through water, in order to purify them from grit, &c., and to cool them to a convenient temperature, and then to use them, together with steam, in power cylinders. He proposed a system of co-axial cylinders, of which the central one was the furnace, the two next were cylindrical shell boilers, the water in the inner one of which completely covered the surface of the furnace,—that in the outer one having its surface always below the insertion of the gas pipes in the furnace; the exterior shells being for the purpose of gradually heating the air, in its passage to the furnace, so that the exterior shell, which alone sustained the bursting pressure, was always cool.

About one seventeenth part of the power produced would be expended in forcing in the air required to sustain the combustion of the fuel. The coal-hopper was co-axial with the furnace, and was kept cool by the supply water descending through its hollow shell, into the interior.

The system would be one of high pressure, and some of its advantages were assumed to be—the absence of a funnel, saving three-fourths of the fuel, safety from explosion, with economy of first cost, space, and labour.

The discussion of the paper was adjourned until the meeting of Tuesday, February 22nd, when it was announced that the whole of the evening would be devoted to the subject.

## PROCEEDINGS OF INSTITUTIONS.

CAMBORNE.—Mr. Davis, the Secretary of the Truro Literary Institution, delivered a lecture on Monday evening, the 7th ult., intitled "An Evening with Thomas Hood." The lecture was amusing and instructive. Mr. Davis did not agree with London lecturers in the way they treated the subject of Hood's life, which, he thought, tended to give the public a false idea of his real character. The principal part of his jokes and puns were written as the only means of providing their author with the common necessities of life—and, moreover, joking was not the kind of intellectual food that a Literary and Scientific Institution ought to distribute to its members.

CHELTEMHAM.—Since our last notice, three more lectures of the present course have been delivered to the members of the Literary and Philosophical Society. Dr. Humphreys' second lecture was on "Anglo-Saxon Brethren." It showed very powerfully the important parts which England and North America are still destined to take in the progress of civilization; and the advantages of their friendly union. Mrs. Balfour (the week following) delivered one of her beautiful discourses, "On Home Influences and Early Impressions," with graceful

and touching eloquence; and the President (W. M. Tarrt, Esq.) gave, on Tuesday last, a lecture "On Italians of the Fifteenth Century," containing illustrations, chiefly from original sources, of the literary, social, and political state of Italy at the period referred to; with passing applications to the present times. The reception of the whole of these lectures may be taken as evidence that this mode of conveying information is still popular.

EXETER.—On Friday last, Sir Stafford H. Northcote, Bart., delivered a lecture on "The Relations of Theory and Practice," to the members of the Literary Society. The lecturer commenced with an allusion to the confusion, the prejudice, and the antagonism, existing in our notions respecting the right relations of Theory and Practice, as a striking evidence of the imperfection of our knowledge. The original meaning of the word Theory, which was of Greek origin, meant pretty much what we now called speculation. After alluding to the speculation of the Greek philosophers, the period of the Reformation and Lord Bacon, the lecturer said that the fault of the English in the present day—the danger to which they were most exposed—was that of becoming too exclusively practical, of too much neglecting and undervaluing scientific knowledge. The prejudice against theory had overshot the mark, and had led those who desired to be practical into a contempt for science itself, which it was feared would produce most disastrous results. The lecturer concluded with a noble extract from Lord Bacon, showing the end, or object, with which knowledge should be sought for, "not as a courtesan, for pleasure and vanity only, or as a bondswoman, to acquire and gain to her master's use, but as a faithful and honoured spouse, for generation, fruit, and comfort."

HIGHGATE.—On Monday, the 7th instant, a special meeting of the Committee of the Literary and Scientific Institution was held,—Harry Chester, Esq., President, in the chair,—for the purpose of electing Richard Dugard Grainger, Esq., F.R.S., to be an honorary member of the Institution. The following is the rule under which such appointments are made:—"Honorary Members shall have all the privileges of membership, without the payment of subscription; they shall be elected by an absolute majority of the whole Committee of Management; and shall be persons of great eminence in literature, science, or the fine arts, or otherwise highly distinguished, or especial benefactors to the Institution. No one shall be elected an Honorary Member on account of rank or worldly position." This was the first occasion of any appointment under the rule, and the attendance was very numerous. Mr. Gainger, who resides at Highgate, and has on many occasions given excellent lectures to the Institution, was unanimously elected.

LYMINGTON.—On Tuesday evening the Rev. S. S. Pugh, of Southampton, delivered a Lecture to the members of the Literary Institution, "on Newspapers." Having traced the origin of these popular productions to the troubled period immediately preceding the Commonwealth, the lecturer spoke of the vicissitudes they had experienced under successive reigns; the total extinction of the liberty of the press in the times of Charles II. and his successor James II.; its revival with the accession of William III.; the restrictions, in the shape of taxes, imposed upon the press during the reign of Anne; its increasing importance and influence, and the difficulties with which it had to struggle, in the reigns of the Georges. The lecturer then expressed an earnest wish for the abolition of the newspaper and advertisement duties, which would, he thought, be

attended with the happiest results; and, in conclusion, trusted that this country might long enjoy the blessings of a free, pure, and enlightened public press, and that the British people might, by their virtue, courage, and devotion to genuine liberty, prove themselves worthy of so great a blessing.

**SEVENOAKS.**—At the third Annual General Meeting of the members of the Literary and Scientific Institution, held on Thursday, January 27th, the Rev. T. Curteis, Vice-President, in the chair, the Secretary read the Report of the Committee for the past year; from which it appears that the total number of members at the end of 1852 was 355, being an increase of 28 on the preceding year. The total number of volumes in the library is 1,246. The receipts during the year were 168*l.* 5*s.* 6*d.*; the expenditure 156*l.* 13*s.* 3*d.*, leaving a balance in the hands of the Treasurer of 11*l.* 12*s.* 3*d.* Great efforts are being made to provide a room or rooms for a museum, and a subscription list has been opened for the purpose of raising the requisite funds before the erection is commenced. Already 42*l.* 10*s.* has been subscribed. Colonel Austen, one of the Vice-Presidents, has offered the land on a lease for twenty-one years at a nominal rent; besides placing a large quantity of building materials at the disposal of the Committee.

**SUDBURY.**—On the 8th instant an interesting and instructive Lecture was delivered by W. W. Boreham, Esq., F.R.A.S., of Haverhill, "on some Recent Discoveries in Astronomy," illustrated by diagrams. The lecturer gave some particulars of the recent total eclipses of the sun, as witnessed by eminent astronomers in the north of Europe, the planets discovered during the present century, the variations observed in the planet Saturn, comets and their orbits, distances of the fixed stars, &c., concluding with some remarks on the benefits to be derived from a study of the science of Astronomy.

**TENTERDEN.**—On Tuesday evening, February 8th, a lecture, in connection with the Mutual Improvement Society, was delivered by the Rev. R. E. B. Maclellan, of Canterbury, "On England One Hundred Years Ago," W. Grisbrook, Esq., President, in the chair. The lecturer drew a forcible picture of the depravity and consequent immorality of that period. After depicting the general insecurity of both person and property at that time, he enlarged somewhat upon the extraordinary advance of the arts and sciences and general improvement of society during the last fifty years. The audience left much pleased, and with no longing for the "Good old times," when sixteen men were hung in a day, and harmless, inoffensive old women were ducked to death for witchcraft. Classes for Music and the French language have just been established.

**WAREHAM.**—A Lecture was delivered in the Town-hall, to the members of the Mutual Improvement Society, on Wednesday evening, the 9th ultimo, by the Rev. G. C. Bellows, of Poole, "on Dreams." Although the subject appears a difficult one for a lecture, the lecturer made it one of great interest, explaining it poetically, metaphysically, and practically, giving authenticated examples of dreams of consolation, revelation, prophecy, &c., and making extracts from different works on the subject.

## TO CORRESPONDENTS.

*Notice.*—Members, and others, who can furnish or obtain original information or suggestions on the subjects included in the Society's Premium-list, or other topics connected with the Society's various departments of operation, are invited to communicate the same to the Secretary, in as condensed a form as possible, for the purpose of being either read and

discussed at the evening meetings, or inserted in the Society's weekly Journal. Anonymous letters cannot be attended to. All communications, whether the author's name is to appear or not, must be accompanied by the writer's name and address.

*Country Institutions.*—Correspondents who are so good as to send reports of proceedings of Local Institutions, are requested to forward them immediately after the Meeting to which they refer, and not later than Tuesday morning, if intended for insertion in the following Friday's Journal.

A neat Case, for holding the Numbers of the Journal for half a year, is now ready, and may be had of the Publisher, 186, FLEET-STREET, price 1*s.* 8*d.*

## QUESTIONS FROM CORRESPONDENTS.

*White Charcoal.*—A substance was sold some years ago in London by the name of "white charcoal." I had an impression that it was prepared by Hume, the chemist in Long-acre; but he being dead, his successor can give me no direct information respecting it. I have also inquired for it from other quarters, but without success. Can you, or any of your correspondents, give me the information here sought, which I am very anxious to have, and to procure a supply of the substance in question? It is, I believe, prepared from bones, but is totally different in appearance and properties from the phosphate of lime of commerce, as also in the effect for which I want it. [No. 35.]

*Musical Instruments.*—Can you refer me to any published work of recent date, which sets forth the true scientific principles involved in the construction of wind instruments? [No. 36.]

*Decomposition of Water.*—Have any results of importance been obtained in reference to the decomposition of water by magnetic electricity, and where can I obtain a published account of the experiments? [No. 37.]

*Artificial Stones.*—Is there any work which sets forward the merits claimed for the various processes of preparing the indurated and other artificial and moulded stones intended for external building purposes? [No. 38.]

*Straw Paper and Papier Maché Board, from Straw.*—At what mills are straw paper and papier mache board being made from straw, and is the machinery the same as in ordinary paper mills? [No. 39.]

*New Patent Law of 1852.*—Who are the parties to apply to for protection or registration, and what would be the expense of the same?—and, 2nd, What would be the cost of a patent for six months, on condition that it might be renewed for a much greater time?—J. C. W. [No. 40.]

J. C. W. is informed, in reply to his queries respecting the Patent Law Amendment Act, 1852, that an inventor desirous of protection under the Act, should leave, at the office of the Commissioners of Patents, Quality-court, Chancery-lane, a petition for a patent, accompanied by what is termed a provisional specification, with a declaration that he is the true and first inventor, and that the same is not in use, and that such provisional specification describes the nature of the invention. If the Law-Officer is satisfied with the provisional specification, he grants a certificate to that effect, which is filed at the Commissioners' Office, and thereupon protection for six months is obtained. The provisional specification shortly describes the nature of the invention. Should the inventor be desirous of proceeding to complete his patent, he gives notice at the Commissioners' Office, and such notice is advertised in the *London Gazette*, and opposing parties may have notice of objection within twenty-one days. If there be no objection, or the objections are overruled, the applicant obtains a patent for fourteen years, on condition of his filing a complete specification within six months from the date of his original application. Such patent, however, ceases at the end of three years and seven years respectively, unless removed by payment of certain fees at such times. Practically, it stands thus.—The six months' protection is obtained on payment of a fee of 5*l.*, the patent for three years on payment of a further fee of 15*l.*, with a stamp duty of 5*l.*; for seven years a payment at the end of the three years of a further fee of 40*l.*, and stamp duty of 10*l.*; and for the whole fourteen years, on payment at the end of seven years of a further fee of 80*l.*, with a stamp duty of 20*l.* These fees and duties are irrespective of fees which may have to be paid in the event of opposition,

and of payments to a patent agent for transacting the business, if one be employed. The rules governing the practice in passing letters patent may be obtained, *gratis*, on application at the Commissioners' Office. Forms of the petition, declaration, and provisional specification, may be purchased at the law-stationers; but although, no doubt, in some instances an inventor may easily manage the whole matter himself, yet as his future rights will depend on the exact title of his invention, and on many nice points of construction, both of the provisional and subsequent specification, he cannot be advised, as a general rule, to act without the assistance of some respectable and competent patent agent.

It may be added, that an inventor, instead of having a provisional specification, may file at the office, with his petition and declaration, a complete specification at once, and thereupon, without reference to the Law-Officer, the invention is protected for six months, and the inventor gets the same rights during that period as if he had a patent; but if he desires to extend the time by completing his patents, such patent is void, if the previously filed complete specification does not correctly describe the nature of the invention. This provision is entirely a novelty, and has been but little acted upon up to the present time.

**Peat Charcoal.**—Can any reader favour me with an inexpensive process for making this article, without reference to the other products obtained in its manufacture? [No. 41.]

**Copal Varnish.**—Can any of your readers inform me what are the ingredients employed in making copal varnish, and the best mode of making it? [No. 42.]

#### ANSWERS TO CORRESPONDENTS.

**Green Walls,** [No. 29].—Has your correspondent tried any of the kyanizing processes? The following extract from a note I once received from the late Professor Cowper will show that the principle is applicable to other articles than timber: "When I first began to lecture upon paper-making I received some pulp from a friend, and having kept what I did not use for eight or ten months, I found it quite mouldy, and so my paper was spotted. I then procured some more, and put a very small quantity of *corrosive sublimate* into it—in fact, I kyanized it; and now I find it keeps perfectly clear of mouldiness for more than a year, and I have no doubt pulp so treated would make paper that would not be liable to mildew."

**Mildew on Walls.**—Your correspondent, No. 29, will find that by washing the wall with a solution of corrosive sublimate, say three ounces to a gallon of water, every six or eight months, the mildew will be preventing forming.

**Book-indexing.**—In my second reply to correspondent "Book-indexing," I think he is in error as to the way the letterings are done. The edges of his foreign books, I believe, are done by the book-binder, as I said they could be in my answer, and not by the letter-press printer. The bookbinder uses single *hand* letters; the printer, a mass, fixed together, and worked off in a *machine*.

#### PARLIAMENTARY REPORTS.

THE Select Committee of the House of Commons, appointed in December last, to inquire into the expediency of distributing gratis, under certain regulations, a selection from the Reports and Returns of the House of Commons amongst Literary, Scientific, and Mechanics' Institutions, commenced its sittings on Thursday, the 17th of February.

A large number of petitions from various local Institutions, which have been presented to the House, respecting the distribution of these papers, have been referred to the Special Committee, the report of which will, no doubt, be looked for with considerable interest.

The following is a List of the Parliamentary Papers printed and presented to the House since its Christmas recess, in continuation of the Lists given in previous Numbers of the Journal:

#### SESSIONAL PRINTED PAPERS OF PARLIAMENT, *Delivered during the Christmas Vacation.*

Par. No.

22. Western Harbours (Ireland)—Report, &c.
10. Drainage of Lands (Ireland)—Lords' Report.
63. Parliamentary Papers—Return.
69. Chronometers—Copies of Applications, &c.
86. Tuscany—Copy of Address, &c.
89. Loans (Public Works)—Return.
90. Consolidated Annuities (Ireland)—Memorial.
95. Income-tax—Return.
- 53(1). Trade and Navigation—Accounts.
68. Public Income and Expenditure—Return.
81. Capture of Bruné, &c.—Despatches.
94. Funded and Unfunded Debt—Return.
93. Tewkesbury Union—Communications.
96. Hop Duties—Account.
97. Sugar, &c.—Return.
98. Consolidated Annuities (Ireland)—Memorial.
51. New Churches—Particulars of Information.
88. Ceylon Commission; Ceylon Committee—Account and Return.
82. Arctic Expeditions—Correspondence.
34. Woods and Forests, &c.—Thirtieth Report of Commissioners.
75. Bethlehem Hospital—Return.
84. Customs' Duties (Colonies) Return; Factories—Reports of Inspectors; Cape of Good Hope (Representative Assembly)—Further papers.

SESSION 1852.

515. Criminal and Destitute Juveniles—Report.
- 395 & 527. Metropolis Water Bills—Index to Minutes of Evidence.

*Delivered on 11th Feb., 1853.*

National Education in Ireland—Sixteenth Report of Commissioners, Vol. I.

*Delivered on 14th Feb.*

100. Navy Estimates.
- National Education in Ireland—Eighteenth Report of Commissioners, Vol. II.
- Marriages in Ireland—Third Report of the Registrar-General.

*Delivered on 15th Feb.*

92. Troops (Colonies)—Return.
- Greek Succession—Treaty.
- Chili (Reciprocal Abrogation of Differential Duties)—Convention.

#### PATENT LAW AMENDMENT ACT, 1853.

APPLICATIONS FOR PATENTS AND PROTECTION ALLOWED.  
*From Gazette, 11th Feb., 1853.*

*Dated 14th Dec., 1852.*

1052. W. Irlam—Improvements in railways.

*Dated 1st Jan., 1853.*

2. H. Bensley—Vulcanised India-rubber springs for trousers and braces, &c.

*Dated 6th Jan.*

35. E. A. Chameroy—New composition of metals.

*Dated 13th Jan.*

91. C. Bullivant—Improvements in spoons and ladles.

*Dated 25th Jan.*

183. A. F. Remond—Ornamenting glass, &c.
185. W. T. Henley—Covering wires, &c., for telegraphic purposes, &c.
187. F. Simpson—Combining materials for cleansing stone.
189. A. V. Newton—Improvements in manufacture of printing surfaces. (A communication.)
191. R. W. Sievier and R. W. Waithman—Bleaching.
193. J. E. Mayall—Daguerreotype and photographic processes.

*Dated 26th Jan.*

195. J. Davis—Improvements in optical and mathematical instruments.
197. N. F. Ador—Plastic materials.
199. C. Nolet—Improvements in indicating time.
201. J. Combe—Hackling and combing flax, &c.

*Dated 27th Jan.*

203. C. H. Alabaster—Improvements in ploughs.
204. A. B. Sturdee—A twin-stern ship, with protected propeller.
205. E. Brown—Blades of table-knives.
206. J. Murdoch—Stamping or shaping metals.
207. E. J. Biven—Signals on railways, &c.
208. W. and J. Galloway—Steam-engines and boilers.

*Dated 28th Jan.*

210. R. Shaw—Starting, stopping, and reversing steam-engines.
211. J. Learmont—Marine pumps and apparatus.
212. W. Tranter—Improvements in fire-arms.

213. A. Lucas—Improved inkstand.  
 214. L. C. Koeffler—Bleaching and dyeing.  
 215. J. Scott—Closing or stoppering bottles, jars, &c.  
 216. G. E. Donisthorpe and J. Crofts—Combing wool, hair, &c.  
 217. J. Poli Kingston—Combining metals for bearings, &c.  
 219. J. Scott Russell—Constructing ships propelled by screw, &c.  
 220. R. Speed—Communication between guard and driver.  
 221. R. A. Brooman—Improvements in cables. (A communication.)

*Dated 29th Jan.*

222. H. Avins and G. Tarplee—Improved brick.  
 223. H. Potter. Method of producing a certain colour on woven fabrics, &c., and in machinery, &c.  
 224. J. Standish—Machinery for preparing cotton, &c., for spinning.  
 225. W. Archer—Preventing accidents by signals on railways, part applicable to blast furnaces.  
 226. H. Moorhouse—Preparing cotton, &c., and in machinery for same.  
 227. F. Mackrory—Preventing entry of dust, &c., into windows (called *Pulvis depulsor*).  
 229. F. Wishaw—Improved lock or system of locks.  
 230. J. R. and J. B. Corry—Dressing lambskin leather.  
 231. A. B. Brooman—Diving-bells and apparatus. (A communication.)  
 233. M. Spring—Separating gold. (A communication.)  
 234. W. H. Hewitson—Suspending mariners' compass in iron vessels.  
 235. H. Batchelor—Combining metal plates for ship-building, &c.  
 236. J. Shand—Improvements in ships' fire-engines.  
 237. S. Rogerson—Manufacture of braid, and machinery for same.  
 238. L. Jennings—Improved lock.  
 239. W. Constable—Transmitting motive power to machinery, and regulating rotary steam-engines.  
 240. W. E. Newton—Machinery for dressing cloth. (A communication.)  
 241. J. B. Lavanchy—Construction of collapsible framework for portable bedsteads, houses, bridges, &c.

*Dated 31st Jan.*

244. T. Knox—Rotatory heel for boots and shoes.  
 245. C. Caulfield—Propelling vessels by tubular propellers with pistons.  
 246. C. Cowper—Preserving butter and other substances.  
 247. S. Perkes—Construction of works applicable to aqueducts, viaducts, &c.  
 249. T. M. Jones—Checking or stopping railway-trains and steadying carriages, &c.  
 251. L. G. Perreux—Machinery for testing strength of yarn-thread, &c.  
 252. E. Pugh—Ballasting ships, and rendering them buoyant.  
 253. J. Mason—Improvements in looms.  
 254. T. Lightfoot—Glaze for pottery, &c.  
 256. D. Chalmers—Improvements in looms.  
 257. J. P. Magoon—Steam boiler chimneys.  
 259. M. Pizzie—Railway carriage-break.  
 260. M. L. A. Tarin—Improved dustpan.  
 261. M. L. A. Tarin—Reflectors.  
 262. J. Comins—Clod-crusher.  
 263. S. Borcham—Improvements in time-keepers.  
 265. J. Pinkerton—Ornamental glass.  
 266. G. Stretton—Improvements in soap, called, "Amylon, or starch soap."  
 267. C. Hadley—Construction of granite and stone pavements.

*Dated 1st Feb.*

269. E. Edwards—Improved bedstead, which may be used as a vehicle.  
 270. T. C. Clarkson—Improvements in giving elasticity to certain structures.  
 271. E. Whele—Improvements in candles, and machinery for same.  
 272. J. Murgatroyd—Construction of boilers.  
 273. J. Cockerill and T. Barnett—Construction of coffee-roasters.  
 274. T. Williams, J. Plimpson, and R. Buchanan—Actuating ships' pumps, &c.  
 275. J. Carter—Rotary engines.  
 277. W. Levesley—Construction of pencil-cases.

*Dated 2nd Feb.*

278. W. Gregory—Bricks and tiles. (A communication.)  
 280. A. E. L. Bellford—Manufacture of candles. (A communication.)

282. A. E. L. Bellford—Stoppering apparatus for bottles. (A communication.)  
 284. J. Smeeton—Dials for telegraphic instruments, &c.  
 286. O. Williams—Water closets.  
 288. R. A. Brooman—Expansion valves. (A communication.)

*Dated 3rd Feb.*

294. G. J. Newberry—Improvements in hinges. (A communication.)  
 296. B. Dulaurier—Rendering boots and shoes waterproof without sewing or nailing, applicable to hats, &c., and machines for shoemaking and hatting.  
 298. J. Greenhalgh—Improvements in churns.  
 300. W. Richards and E. Beck—Machinery for exhausting or driving air.

#### APPLICATION WITH COMPLETE SPECIFICATION FILED.

328. A. E. L. Bellford—Improvements in metal musical wind instruments, to be called, "Besson's System." Feb. 5, 1853.

#### WEEKLY LIST OF PATENTS SEALED.

*Sealed 12th Feb., 1853.*

500. Arnold James Cooley, of Parliament-street—Improvements in the manufacture of artificial leather.  
 585. John Whitcomb and Richard Smith, of Kidderminster—Improvements in the manufacture of carpets, hearth-rugs, and other similar fabrics.  
 611. Robert William Siever, of Holloway—Improvements applicable to the manufacture of hats, caps, and bonnets, or other coverings for the head.  
 698. Oswald Dodd Hedley, of Newcastle-upon-Tyne—Improvements in getting coals and other minerals.  
 944. Page Dewing Woodcock, of Lincoln—Improved preparation or pill for medicinal purposes, hereby denominated, "Page Woodcock's Wind-pills."  
 1003. Sir John Powlett Orde, Bart., of Kilmorey House, Loch Gilp Head, Argyle—Improvements in head-gear for horses, and other like animals.  
 1063. George Elliott and William Russell, of St. Helens, Lancashire—Improvements in boiling down saline solutions.  
 1132. Frank Clarke Hills, of Deptford—Improvements in purifying gas.  
 1150. Peter Fairbairn, of Leeds, and Samuel Renny Mathers, of Leeds—Improvements in machinery for carding flax, hemp, China-grass, and jute, and the tow of the several materials before mentioned.  
 1152. Fulcran Peyre and Michel Dolques, of Lodève, Department of L'Hérault, in France—Improvements in machinery for dressing woollen cloth.

*Sealed 14th Feb.*

1107. William East, of Spalding—Improvements in machinery for crushing clods, for dibbling and drilling land, and sowing seeds.

*Sealed 16th Feb.*

155. David Stephens Brown, of 2, Alexandrian Lodge, Old Kent-road—Improved means of navigating the water by ships.  
 387. Joseph Major, of 13, Elizabeth-place, Ball's-pond-road, near Kingsland-gate—Removing spavins, ringbones, curbs, splents, and other unnatural ossifications and humours from horses.  
 430. Richard Archibald Brooman, of 166, Fleet-street—Improvements in vices.  
 525. Myer Myers and Maurice Myers, of Birmingham—Improvements in pens and penholders.  
 839. James Higgin, of Manchester—Improvements in the manufacture of certain mordants used in preparing woven or textile fabrics for printing, straining or dyeing them, and in the mode or method of using the same or other mordants for the said purposes.  
 970. Asa Lees, of Rhodes House, within Oldham, and Thomas Kay, of Mumps, within Oldham—Improvements in machinery for spinning and doubling cotton, wool, silk, flax, and other fibrous materials.  
 1071. Thomas Dunn, of Pendleton, Hugh Graves, of Manchester, and William Watts, jun., of Miles Platting, near Manchester—Improvements in machinery and apparatus for altering the position of engines and carriages on railways.  
 1161. George Bower, of St. Neot's—Improvements in the manufacture of gas for illumination.  
 1185. Francis Alton Calvert, of Manchester—A universal ratchet-drill.

#### WEEKLY LIST OF DESIGNS FOR ARTICLES OF UTILITY REGISTERED.

Date of Registration.	No. in the Register.	Title.	Proprietor's Name.	Address.
Feb. 10	3420	Portable Gas Apparatus.	Benjamin Sawdon	Huddersfield.
" "	3421	The Club-house Cravat.	Dent, Allcroft, & Co.	97, Wood-street.
" 11	3422	Improved Self-adjusting Tongs, or Claws, used for Gas-piping Shafting or other similar purposes.	Christopher Hodgson and James Stead	Salford, near Manchester.